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NOZZLE ASSEMBLY FOR HVOF THERMAL SPRAY SYSTEM

ABSTRACT OF THE DISCLOSURE

A nozzle assembly for a HVOF thermal metallic spray coating system includes an inner tube, a middle tube and an outer tube which are concentrically arranged about an axis of the nozzle assembly and are spaced to provide annular, concentric gas flow passages for oxygen and gaseous fuel along with a central wire feed passage in an efficient, compact arrangement. A slided nib and plug are fitted to the discharge end of the assembly and defined, together with the middle tube, an annular premix chamber for the combustible gases, and a plurality of circumferentially spaced mixing slots and a downstream mix end portion of the nib where complete mixing of the gases occurs prior to entry into the combustion chamber provided in an air cap. An annular passage between the air cap and outer tube communicates with a high pressure air source for establishing an envelope of air against the inside surface of the air cap to serve as a protective barrier layer from the atomized metal.